

CLAIMS

1. A spring with high durability coated with two layers consisting of an undercoat layer which is composed of an epoxy resin powder coating containing 75 wt % or more of zinc, and a topcoat layer which is formed on said undercoat layer and composed of an epoxy polyester resin powder coating.
2. A spring with high durability as claimed in claim 1, wherein a phosphate film is formed under said undercoat layer.
3. A spring with high durability as claimed in claim 1, wherein said undercoat layer has a thickness of 50 μ m or more.
4. A spring with high durability as claimed in claim 1, wherein said topcoat layer has a thickness of 200 μ m or more.
5. A method of coating a spring with high durability, which comprises:
 - an undercoating step of making an epoxy resin powder coating which contains 75 wt % or more of zinc adhere to a surface of said spring;
 - a topcoating step of making an epoxy polyester resin powder coating adhere to an undercoat film composed of said epoxy resin powder coating;
 - and
 - a baking step of baking said undercoat film and said epoxy polyester resin powder coating adhered to said undercoat film.

6. A method of coating a spring with high durability as claimed in claim 5, further comprising an intermediate heating step of heating said adhered epoxy resin powder coating to form a film in a half-cured state, between said undercoating step and said topcoating step.

7. A method of coating a spring with high durability as claimed in claim 5, further comprising:

a preheating step of preheating said spring to 70 °C or above and 180 °C or below, before said undercoating step, and

an intermediate heating step of heating said adhered epoxy resin powder coating at a temperature of 90 °C or above and 180 °C or below, between said undercoating step and said topcoating step, wherein

said baking step is carried out at a temperature of 160 °C or above and 220 °C or below.

8. A method of coating a spring with high durability as claimed in claim 5, further comprising a pretreating step of previously forming a phosphate film on an uncoated surface of said spring before said undercoating step.

9. A method of coating a spring with high durability as claimed in claim 5, wherein said epoxy resin powder coating includes at least one of bisphenol A type epoxy resin, bisphenol F type epoxy resin and crystalline epoxy resin.

10. A method of coating a spring with high durability as claimed in claim 5, wherein said epoxy resin powder coating contains block isocyanate.

11. A method of coating a spring with high durability as claimed in claim 10, wherein the content of said block isocyanate is 0.2 wt % or more and 5 wt % or less to 100 wt % of the total weight of said epoxy resin powder coating.

12. A method of coating a spring with high durability as claimed in claim 5, wherein said epoxy polyester resin powder coating includes at least one of bisphenol A type epoxy resin, bisphenol F type epoxy resin and crystalline epoxy resin, and polyester resin.

13. A method of coating a spring with high durability as claimed in claim 5, wherein said epoxy polyester resin powder coating includes an extender pigment.